

Warm-up

Write the equation of the
power function given:

$$b = 9$$
$$(3, -5)$$

$$y = -.007(a)^+$$


$$-5 = a9^3$$

$$-5 = a729$$

$$a = -.00685871 \text{ or } -.007$$

7-2 Continued

Use the calculator to fill in the table.

 n	y
2	2.25
8	2.565
32	2.676
128	2.707
512	2.715

$$y = (1 + 1/n)^n$$

As n increases what happens?

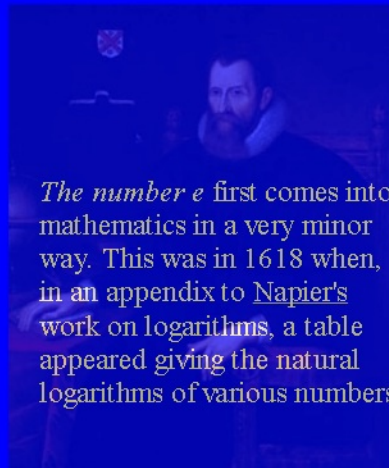
y ↑, slower

Use the calculator to find the value of the number e .

$$e = 2.718281828$$

Using the equation $y = (1 + 1/n)^n$ we are getting closer and closer to the value of e .

What in the world do we use the number e for?



The number e first comes into mathematics in a very minor way. This was in 1618 when, in an appendix to [Napier's](#) work on logarithms, a table appeared giving the natural logarithms of various numbers.

Investments!

Ex 1

(Principle) (e) (rate) [time (in years)]

Invest \$1050

Annual Rate of 5.5%

5 years

$$A = Pe^{rt}$$

$$A = 1050 e^{(.055)(5)}$$

$$\$1382.36$$

Ex 2

Invest \$1300

Rate 4.3%

3 years

$$A = Pe^{rt}$$
$$A = 1300 e^{(.043)(3)}$$
$$\text{\$ } 1479.00$$

Ex 3

How much must you invest to have
\$32,750 in 8 years with rate of 7.2%?

$$A = Pe^{rt}$$
$$\frac{32,750}{e^{(.072)(8)}} = \frac{P e^{(.072)(8)}}{e^{(.072)(8)}}$$

$$P = \$18,410.17$$

Questions please

*Homework pg 316 (20-29) + make one
investment problem and solve it.*



